

Notice of Allowability	Application No.	Applicant(s)	
	10/665,893	KODAMA, SHOJI	
	Examiner	Art Unit	
	Mehdi Namazi	2189	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 7/29/2005.
2. ☒ The allowed claim(s) is/are 21, 23-27, 29-37, which has been renumbered as 1-14.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying Indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).**
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|---|
| <ol style="list-style-type: none"> 1. <input type="checkbox"/> Notice of References Cited (PTO-892) 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | <ol style="list-style-type: none"> 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date <u>11/6/05</u>. 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment 8. <input type="checkbox"/> Examiner's Statement of Reasons for Allowance 9. <input type="checkbox"/> Other _____ |
|---|---|

DETAILED ACTION

1. This office action is in response to amendment filed July 25, 2005.

EXAMINER'S AMENDMENT

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Robert C.Colwell (Reg. No. 27,431) on September 1, 2005.

The application has been amended as follows:

In the Claims:

Claim 21 (currently amended): A method comprising:

Providing a logical disk configured as a plurality of logical entities, each of the logical entities being configured as a plurality of physical disks;

Copying at least some portion of data on a first logical entity to at least one physical disk not included in the plurality of logical entities[.];

Determining a relatively highly accessed one of the plurality of logical entities;

and

Selecting that relatively highly accessed one of the plurality of logical entities for the step of copying.

Claim 22 (canceled).

Claim 28 (canceled).

Claim 30 (currently amended): A storage system comprising:

A plurality of physical disks; and

A controller coupled to the physical disks, the controller configured to:

Providing a logical disk configured as a plurality of logical entities, each of the logical entities being implemented with a subset of the plurality of physical disks;

Copy at least some portion of data on one of the logical entities to at least one physical disk not included in the subset of the plurality of physical disks[.];

Determine a relatively highly accessed one of the plurality of logical entities; and

Select that relatively highly accessed one of the plurality of logical entities for the step of copying.

Claim 32 (new): A method comprising:

Providing a logical disk configured as a plurality of logical entities, each of the logical entities being configured as a plurality of physical disks;

Copying at least some portion of data on a first logical entity to at least one physical disk not included in the plurality of logical entities; and wherein

The plurality of logical entities include a parity group which is partitioned into two parity groups, each of the logical entities being configured as a plurality of physical disks, the at least one physical disk not included in the plurality of logical entities includes a set of physical disks, and one of the two parity groups is copied to the set of physical disks.

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Claim 33 (new): The method of claim 32 further comprising before the step of copying, steps of:

Determine a relatively highly accessed one of the plurality of logical entities; and

Select that relatively highly accessed one of the plurality of logical entities for the step of copying.

Claim 34 (new): The method of claim 32 wherein the plurality of physical disks is the same as the number of the at least one physical disk not included in the plurality of logical entities.

Claim 35 (new): The method as in claim 33 wherein the logical entities comprise parity groups.

Claim 36 (new): A storage system comprising:

A plurality of physical disks; and

A controller to the physical disks, the controller configured to:

Provide a logical disk configured as a plurality of logical entities, each of the logical entities being implemented with a subset of the plurality of physical disks;

Copy at least some portion of data on one of the logical entities to at least one physical disk not included in the subset of the plurality of physical disks;

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Determine a relatively highly accessed one of the plurality of logical entities;

Select that relatively highly accessed one of the plurality of logical entities for the step of copying;

Wherein the plurality of logical entities include a parity group which is partitioned into two parity groups, each of the logical entities being configured as a plurality of physical disks, the at least one physical disk not included in the plurality of logical entities includes a set of physical disks, and one of the two parity groups is copied to set of physical disks.

Claim 37 (new): The storage system as in claim 39 wherein the controller is further configured to divide at least one of the plurality of logical entities into at least two logical entities, each one of the at least two logical entities being implemented by a different subset of the plurality of physical disks.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mehdi Namazi whose telephone number is 571-272-4209. The examiner can normally be reached on Monday-Friday 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mano Padmanabhan can be reached on 571-272-4210. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Mehdi Mamazi
November 8, 2005

Mano Padmanabhan
11/10/05

**MANO PADMANABHAN
SUPERVISORY PATENT EXAMINER**